



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,478	09/26/2003	Bertrand Lion	05725.1242-00	7403

22852 7590 11/15/2006

FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER  
LLP  
901 NEW YORK AVENUE, NW  
WASHINGTON, DC 20001-4413

EXAMINER

PEZZUTO, HELEN LEE

ART UNIT PAPER NUMBER

1713

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/670,478

Applicant(s)

LION ET AL.

Examiner

Helen L. Pezzuto

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-35 and 72-89 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 and 72-89 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/6/06 has been entered.

***Response to Amendment***

Applicant's amendment to claims 1, 16, and 78, and the cancellation of claims 36-71, 90-121 filed in the response on 9/6/06 is acknowledged. Currently, claims 1-35, and 72-89 are pending in this application.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

Art Unit: 1713

the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-35, and 72-89 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galleguillos et al. (US-005) or Frechet et al. (US-855 or US-925) or Schimmel et al. (US-883) or Anton et al. (US-206).

US 6,410,005 B1 to Galleguillos et al. discloses AB block copolymer comprising a soft hydrophobic and a hard, hydrophilic blocks with two or more distinct glass transition temperatures, represented by Structures 1 and 2 (col. 4, lines 44-65). Specifically, prior art discloses a process of polymerizing a polyfunctional monomer X within the scope of the instant intermediate block (see col. 4, structures 1 and 2) with a first ethylenically unsaturated monomer(s) to form an A block, and subsequently polymerizing a second ethylenically unsaturated monomer(s) containing at least one carboxylic acid group with the A block to form a B block and the resultant block copolymer (col. 3, lines 53-60; col. 4, lines 18-43; col. 5, lines 2-4; col. 6, line 27 to col. 7, line 57). Absent of specific compositional and architectural details defined for the

Art Unit: 1713

instant intermediate block, prior art -B-X-X-A- linkages in structures 1 and 2 fall within the scope of the instant intermediate block defined in the present claims. US-005 teaches average molecular weight of the resultant block copolymer within applicants' range (col. 5, lines 23-29; col. 22, Table 2), having film forming property and water dispersibility (col. 6, lines 3-5). Suitable hydrophobic monomer A includes the various (meth)acrylates, (meth)acrylamides expressed in the present claims, with preferred species such as n-butyl acrylate, ethyl acrylate and 2-ethylhexyl acrylate which read on the instant low Tg monomeric species (col. 7, line 65 to col. 9, line 2). Patentees' preferred hydrophilic monomer B include ethylenically unsaturated carboxylic acid such as (meth)acrylic acid, which along with the disclosed alkyl methacrylates, clearly fall within the scope of the instant block having Tg greater than or equal to 40°C (col. 10, line 57 to col. 11, line 30). Prior art specifically disclose using mixtures of A and B monomers so as to achieve the desired balance of the resultant block polymer properties (col. 12, lines 12-15).

US 6,663,855 B2 and US 6,685,925 B2, both to Frechet et al. (reference will be made with respect to US-855

Art Unit: 1713

primarily) discloses a block copolymer comprising a core polymer and two or more flanking polymers, wherein at least one of the flanking polymers is a copolymer derived from two or more monomers (abstract). Specifically, prior art block copolymer may have the linear structure of  $(AB)_n$ -Core, wherein at least one of blocks A and B comprises two or more monomers is hydrophobic and hydrophilic. Typically, component A is a hard block having a high Tg (i.e. preferably from 30 to 150°C), and component B is a soft block having a low Tg (i.e. preferably from 175 to less than 30°C) (col. 3, line 66 to col. 4, line 36). The respective monomer components made up the core and flanking polymers are selected to produce a block polymer with balanced hydrophilic/hydrophobic characteristic (col. 4, lines 55-57). Prior art discloses Mn and Mw of the respective core and flanking polymers within the claimed range. A molar ratio of the core polymer to the flanking polymer from 1:10 to 10:1 is further suggested (col. 5, lines 1-15). Suitable monomers for the core and flanking polymers are taught within the scope of the present claims (col. 7, line 6 to col. 9, line 49). In the embodiment of A-B-A block copolymer, prior art teaches the transition

Art Unit: 1713

from each A block to B block maybe tapered such that there may be a gradual compositional change from A block to B block. Furthermore, there may be several monomers in a single block or there may be one or more blocks of random copolymer, referred as to the R block. Prior art discloses polymer architecture of A-R-B-A, A-R-B-R-A, wherein R is random blocks of monomers A and B (US-855, col. 10, lines 13-50). Accordingly, the instant block copolymer comprising at least one first block, second block, linked together via an intermediate block comprising at least one constituent monomer of the at least first block and at least one constituent monomer of the at least one second block are taught within the scope of prior art block copolymer.

US 6,197,883 to Schimmel et al. discloses a coating composition comprising a block copolymer flow control agent. Prior art block copolymer contains at least a first and a second block, wherein the Tg of second block is at least 20°C greater than that of the first block. Suitable first and second block monomers are derived from C<sub>1</sub>-C<sub>20</sub> alkyl (meth)acrylates (col. 4, lines 22 to col. 6, line 10). Prior art discloses the inclusion of a minor amount of at least one hydroxyl functional ethylenically unsaturated monomer (i.e. hydroxyalkyl (meth)acrylate) in each of the

Art Unit: 1713

first and second blocks, in a random or gradient fashion (col. 6, lines 11-41). The block copolymer is preferably produced by ATRP method wherein the instant polydispersity index is clearly obtainable (col. 8, line 56 to col. 9, line 3). A triblock copolymer (IBMA/HPMA)-(2-EHMA/HPMA)-(DMAEMA/HPMA) is exemplified in Example A (col. 23), which meets the requirement of the present block copolymer as defined in the present claims.

US 6,153,206 to Anton et al. discloses a cosmetic composition comprising a synthetic polymer having a first repeating unit derived from methacrylic ester monomer having Tg of -10 to 75°C, and a second repeat unit derived from methacrylic ester monomer having Tg of 76 to 120°C. The resulting polymer can be a block copolymer having a Tg in the range of about 20 to 105°C (col. 2, lines 8-23). Suitable methacrylic ester monomers used as first and second repeating units fall within the scope of the first and second block monomer species expressed in the present claims (col. 3, line 56 to col. 4, line to col. 5, line 54). Prior art block copolymer and random copolymer architectural representatives shown at col. 4, lines 28-60,



Art Unit: 1713

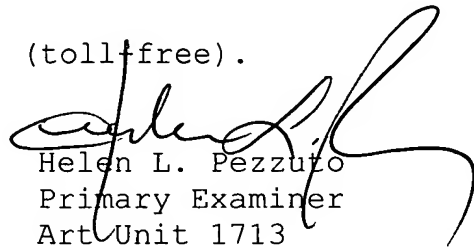
embrace the instant block polymer as defined in the present claims.

Prior art discussed above provide clear disclosures regarding the method and the selection of various monomers species in formation block copolymer systems having balance of hydrophilic/hydrophobic properties. The selection of hard and soft block components with differences in glass transition temperature is suggested within the scope of the present claims. Accordingly, one skilled in the art would have readily envisaged the selection of the suitable monomers having Tg differences as taught, motivated by the reasonable expectation of success in forming block copolymers with balanced hydrophilic/hydrophobic characteristics. Once the respective monomer block components are suggested with Tg consideration, the determination of their optimum proportion or workable ranges would involve only routine skill in the art. Thus, rendering obvious the present claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



Helen L. Pezzuto  
Primary Examiner  
Art Unit 1713

hlp